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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,711

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Marco Cantu'

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EXAMINER

KNABLE, GEOFFREY L

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,711

Applicant(s)

CANTU' ET AL.

Examiner

Geoffrey L. Knable

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-52 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 27-52 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/55/08)
Paper No(s)/Mail Date 4/27/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

1. Claims 31 and 40-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 31, the antecedent for "the pressure" is ambiguous given that both claims 27 and 30 define a "pressure" of the primary working fluid and it is not clear which is intended. Note that the claim 27 pressure is with respect to pressing the tire against the mold whereas the claim 30 pressure is while the tire is pressed against the support. It is assumed that this is in reference to the claim 30 pressure but clarification is required.

In claim 40, line 9, the "passage device" is defined as formed through the toroidal support but the claim does not clearly define that the apparatus includes the toroidal support. It is suggested that the toroidal support be more positively defined as part of the overall apparatus to avoid any ambiguity in this regard. This same ambiguity is presented in claim 45.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 27-50 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Midgley et al. (US 1,394,928) taken in view of Caretta et al. (US 6,409,959) and Clinefelter et al. (US 1,407,839).

Midgley et al. disclose a method of molding and curing a tire including building an unvulcanized tire on a toroidal support and heating the support (page 2, lines 99-104; page 5, lines 34-37) and pressing an inner surface of the tire against an outer surface of the support by a fluid under pressure (esp. page 2, lines 35-38; page 5, lines 37-41; fig. 10). This is followed by molding and vulcanizing the tire under heat and pressure (e.g. col. 5, lines 58-62). Midgley et al. therefore discloses a process as required by claim 27 except that it does not also apply the fluid pressure in a diffusion gap between the tire and support.

Caretta et al. is also directed to molding a tire built on a toroidal support, including similar preliminary vulcanization of the tire on the support, and suggests it to be desirable to exert the pressure of the tire against the mold by admitting pressurized fluid through the support into a diffusion gap between the tire and support in order to achieve desired cord preloading effects, better heat transfer and less need for precise rubber volume control (esp. col. 2, lines 17-67). Clinefelter et al. provides a similar teaching of applying pressure through the support into a diffusion gap to press the tire

against the mold (e.g. note the figures). In view of these teachings, it would have been obvious to adapt the Midgley process to include feeding the internal pressure fluid into a diffusion gap between the outer surface of the toroidal support and inner surface of the tire to press the tire against the mold and vulcanize the tire. A method as required by claim 27 would therefore have been obvious. As to claim 28, inclusion of electrical resistors in the support to help effect the preliminary heating would have been obvious in view of col. 9, lines 55-61 of Caretta et al. As to claim 29, Midgley et al. (e.g. page 5, lines 58-62), as well as Caretta et al. and Clinefelter et al., all teach heating the support with a fluid. As to claims 30-33, as Midgley et al. effects the external pressure applying to help maintain the tire against the support, it would have been obvious to ensure that any pressure externally applied be higher than any internal pressure, especially when using a core in which the fluid can pass into the space between the tire and core as suggested by the secondary references. The particular pressures chosen would have been readily and routinely selected by the ordinary artisan through routine optimization for only the expected results. As to claims 34-35, use of for example steam for the heating fluid is taught by both Midgley et al. and Caretta et al. (e.g. col. 5, lines 38-43), the particular temperature being selectable though routine optimization by the ordinary artisan. As to claims 36-38, the particular time of initiating the heating relative to pressure applying would have been an obvious selection, it being clear that all that is required is that ultimately the pressure application be maintained while the tire is in contact with the heated support. As to claim 39, Midgley et al. provides external heat to

the tire from the heater (e.g. page 54, line 58-62) which would transmit heat to the external surface of the bead.

As to claims 40 and 45, Midgley et al. discloses a vulcanization mold adapted to receive a toroidal support and including feeding devices to supply pressurized fluid to press the tire against the support as already noted. Further, to include passages in the toroidal support to feed fluid between the support and tire would have been obvious in view of Caretta et al. and Clinefelter et al. for the same reasons detailed above with respect to claim 1. Heating for the toroidal support as well as the external fluid (in the heater) would have been implicit or obvious as heated fluid can be applied both internally and externally as already noted. An apparatus as required by claims 40 and 45 (note that the heater in fig. 10 is an airtight device adapted to receive the toroidal support) would therefore have been obvious. As to claims 41 and 47, note feed and discharge ducts 60 and 61 in Midgley et al. (fig. 10). As to claim 42, heating the support with internal steam is suggested by Midgley as well as Caretta et al. As to claims 43 and 49, use of resistors would have been obvious in view of Caretta et al. for the same reasons noted above with respect to claim 28. As to claim 44, the mold includes two halves (67, 68) which would be expected to seal, or it would have been obvious to ensure that it is sealed, when closed. Various other seals, such as seals in the piping, etc. close to vents (e.g. 65) would or should be provided to ensure they are sealed. As to claim 46, note lower half (e.g. 51 and/or 53) and upper half (55) that closes the airtight chamber and that would or certainly should be sealed around its circumference. As to claim 48, note duct "62". As to claims 50 and 52, including ducting in the mold

sides to ensure adequate mold heating would have been obvious and would supply heat to the external tire surface, such being known and conventional in this art - note for example 11a/11b in Caretta et al.

5. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Midgley et al. (US 1,394,928) taken in view of Caretta et al. (US 6,409,959) and Clinefelter et al. (US 1,407,839) as applied above, and further in view of Kobayashi (US 6,350,402).

As already noted, ducted external side heating was considered obvious. Electrical resistors are however a known, suitable and obvious alternative to the steam ducts - note for example col. 3, lines 58-60 of Kobayashi.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Midgley (US 1,417,551) is another example of partial cure during which the tire is pressed using fluid pressure against a heated toroidal core but is at present no more relevant than the applied prior art.

Iverson (US 2,169,146 - note esp. duct 68/69) and Greenwood (US 4,957,676 - note esp. fig. 8) disclose tire molds including ducting to provide pressure between the tire and the mold to enhance stripping from the mold but are at present less relevant than the applied prior art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Geoffrey L. Knable/
Primary Examiner, Art Unit 1791

G. Knable
July 19, 2008